

Claims

1. A library of expressible nucleic acids, said library including:
a multiplicity of compartments, each of said multiplicity of compartments
5 including at least one vehicle comprising at least one nucleic acid of the library,
whereby said at least one vehicle is capable of very efficiently introducing said at
least one nucleic acid into a cell such that said at least one nucleic acid can be expressed
by the cell.
- 10 2. The library of claim 1, wherein said at least one vehicle further comprises a viral
element or a functional part, derivative and/or analogue thereof.
3. The library of claim 2, wherein said at least one vehicle is derived from an
adenovirus.
- 15 4. The library of any one of claims 1-3, wherein the cell is an eukaryotic cell.
5. The library of any one of claims 1-4, wherein at least one compartment comprises
at least two of said vehicles.
- 20 6. The library of any one of claims 1-5, wherein at least one of said at least one
vehicles comprises at least two nucleic acids.
7. The library of claim 3, wherein said at least one vehicle comprises nucleic acid
25 derived from said adenovirus.
8. The library of claim 7, wherein said at least one nucleic acid comprises at least
one nucleic acid encoding an adenovirus late protein or a functional part, derivative
and/or analogue of said adenovirus late protein.
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9. The library of claim 7 or claim 8, wherein said at least one nucleic acid comprises said at least one nucleic acid encoding adenoviral E2A or a functional part, derivative and/or analogue thereof.

5 10. The library of any one of claims 7-9, wherein said at least one nucleic acid comprises nucleic acid encoding at least one E4-region protein or a functional part, derivative and/or analogue thereof.

10 11. The library of any one of claims 7-10 wherein said at least one nucleic acid comprises nucleic acid encoding at least one E1-region protein or a functional part, derivative and/or analogue thereof.

15 12. The library of any one of claims 2-11 wherein said at least one vehicle further comprises nucleic acid having an adeno-associated virus terminal repeat or a functional part, derivative and/or analogue thereof.

20 13. The library of any one of claims 3-12, wherein said at least one vehicle is a viral element derived from adenovirus, said vehicle comprising an adenovirus capsid or a functional part, derivative and/or analogue thereof.

14. The library of any one of claims 1-13, wherein said at least one vehicle comprises adenovirus fiber proteins from at least two adenoviruses.

25 15. A method for determining at least one function of at least one nucleic acid present in a library of any one of claims 1-14, said method comprising:
transducing a multiplicity of cells with at least one vehicle comprising said at least one nucleic acid from said library, and
culturing said multiplicity of cells while allowing for expression of said at least one nucleic acid and determining the expressed function thereof.

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16. The method according to claim 15, wherein said multiplicity of cells is divided over a multiplicity of compartments, each said compartment comprising said at least one vehicle.
- 5 17. The method according to claim 15 or claim 16, further comprising selecting at least one vehicle having a desired function.
18. A method for obtaining an expressible nucleic acid having a desired function when expressed in a cell, said method comprising:
- 10 a step of determining at least one function of at least one nucleic acid present in a library according to any one of claims 1-14, said step of determining comprising:
- transducing a multiplicity of cells with at least one vehicle, said at least one vehicle comprising said at least one nucleic acid, and
- 15 culturing said multiplicity of cells while allowing for expression of said at least one nucleic acid and determining the expressed function thereof.
19. A process for producing a library comprising a multiplicity of compartments, each compartment comprising at least one nucleic acid delivery vehicle comprising at least one nucleic acid, said method comprising:
- 20 a step of recombining delivery vehicle nucleic acid with said at least one nucleic acid, thereby producing said at least one vehicle capable of delivering said at least one nucleic acid to a cell in an expressible manner.
20. The process for producing a library according to claim 19, wherein said step of recombining comprises allowing for homologous recombination between at least
- 25 partially overlapping sequences in said delivery vehicle nucleic acid and said at least one nucleic acid.
21. The process for producing a library according to claim 19 or claim 20, wherein
- 30 said vehicle nucleic acid, said at least one nucleic acid, or both said vehicle nucleic acid and said at least one nucleic acid comprises adenoviral nucleic acid or a functional part, derivative and/or analogue thereof.

22. The process for producing a library according to claim 21, wherein said adenoviral nucleic acid comprises a host range mutation that enables adenovirus to replicate in non-human primate cells.

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23. A library obtainable by the process of any one of claims 19-22.

24. A method for amplifying at least one vehicle nucleic acid present in a library according to any one of claims 3-14, or 23, said method comprising

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providing a cell with said at least one vehicle,
culturing said cell,
allowing for the amplification of said at least one vehicle, and
harvesting vehicles amplified by said cell.

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25. The method according to claim 24, wherein said cell comprises said at least one nucleic acid encoding an adenoviral E1-region protein.

26. The method according to claim 25, wherein said cell is a PER.C6 cell (ECACC deposit number 96022940) or a functional derivative and/or analogue thereof.

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27. The method according to claim 25 or claim 26, wherein said cell further comprises said at least one nucleic acid encoding adenoviral E2A and/or adenoviral E4-region protein or a functional part, derivative and/or analogue thereof.

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28. The method according to any one of claims 25-27, wherein said vehicle nucleic acid has no sequence overlap with other nucleic acids present in said cell leading to the formation of said vehicle nucleic acid capable of replicating in the absence of E1-region encoded proteins.

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29. The library according to any one of claims 1-14 wherein said multiplicity of compartments comprises a multiwell format.

30. The library according to any one of claims 1-14, wherein said at least one nucleic acid encodes a product of unknown function.

5 31. The library according to any one of claims 1-14, wherein said library is used or said method is performed in an at least substantially automated setting.

32. The library according to any one of claims 1-14, wherein said multiplicity of compartments comprises a multiwell format.

10 33. The method according to any one of claims 15-22, 24-29, wherein said at least one nucleic acid encodes a product of unknown function.

15 34. The method according to any one of claims 15-22, 24-29, and 33, wherein said library is used or said method is performed in an at least substantially automated setting.

35. A multiplicity of cells comprising a library according to any one of claims 1-14 or 23.